

Association of Habitual Abortion with Group B Streptococcus Genital-Tract Infection Experiences with Intravenous Antibiotic Therapy

Abstract

Pre and Post-conceptional, broad-spectrum intravenous antibiotic therapy was used in patients with multiple miscarriages, who exhibited genital-tract colonization with Group B Streptococcus (*Streptococcus constellatus*). The 11 treated cases uniformly yielded full term, normal deliveries, with superior fetal and maternal outcomes. It is suggested that Group B Streptococcus is one of the causes of habitual abortions.

Background and History

Group B Streptococcus or *Streptococcus agalactiae* has been known in veterinary medicine for many years. The organism is one of the important causes of mastitis in cows. In the 1930s, through Lancefield's classification, the organism was separated from other Streptococci¹ and within a few years, it became apparent that it is readily recovered from human sources, both in symptomatic and asymptomatic conditions, most notably from the vaginal canal of post-partum women suffering from post-partum endometritis.² Group B Streptococcus is one of the chief causes of neonatal sepsis and meningitis.³ Commercially- available kits, using latex agglutination, facilitated quick, in-office identification of the bacterium.

Epidemiology

As there is no mandatory reporting system in effect, the precise number of Group B Streptococcal infections is unknown. It is also unknown how many asymptomatic carriers exhibit genital-tract colonization with the organism. It is certain, however, that transmission of the bacterium can take place either through a vertical route, that is, mother to fetus, or horizontally, through sexual intercourse. The transmission occurs perinatally during the birth process.⁴

Asymptomatic bacterial colonization can be documented in the vagina, in the lower gastrointestinal tract and occasionally in the upper respiratory tract. It is estimated that up to 20 percent of asymptomatic pregnant or non-pregnant women carry the organism.⁵

It is estimated that Group B Streptococcus in the United States causes approximately 10,000 neonatal infections yearly. Increased awareness of the role of this bacterium as the cause of premature birth and perinatal infection prompted the CDC to establish certain guidelines during the past decade. According to these guidelines, all women are either screened between 35 and 37 weeks gestation and those identified as carriers for Group B Streptococcus are offered intrapartum antibiotic prophylaxis, or antibiotics are offered to all women who develop intrapartum fever, premature contractions or premature rupture of the membranes.

The liberal use of Ampicillin during labor helped to reduce neonatal Group B Streptococcal infections by 50 percent during the last couple of years. Similarly, Ampicillin given therapeutically for women exhibiting Group B Streptococcal infection and premature labor uniformly helped prolong the gestation.⁶

Association With First and Second Trimester Miscarriages

Unfortunately, there is a great paucity of studies dealing with bacterial infections in the genital canal and associated miscarriages. **During the past few years, we became aware of certain patients with histories of one, two or more miscarriages or histories of adverse pregnancy outcomes and heavy cervical contamination with Group B Streptococcus and heavy endometrial contamination with Streptococcus constellatus, the anaerobic variant of Group B Streptococcus.**

Short of finding any other cause behind the patients' miscarriages, **we entertained the possibility that Group B Streptococcus could be responsible for both the previous miscarriage or adverse pregnancy outcome and, at the same time, could frustrate the current trial for another pregnancy.** Following CDC guidelines, treatment failures with orally given Ampicillin were an everyday phenomenon. We instituted pre and post-conceptional antibiotic therapy following sensitivity reporting. If the bacterium was sensitive to Clindamycin, a ten-day intravenous Clindamycin course preceded the trial for the next pregnancy. In Clindamycin-resistant cases, the patient routinely received ten days of intravenous Ampicillin, 6 grams daily. The husbands were given broad spectrum oral antibiotic therapy according to the sensitivity results of seminal fluid isolates for a minimum of four weeks or they underwent intravenous antibiotic therapy, preferably simultaneously with their wife.

Case history

The case history of Ms. B. is a rather typical summary of adverse reproductive events we observe in this particular patient population. These patients all suffer from recurring pregnancy losses. There is often secondary infertility with a previous abnormal pregnancy outcome in their history. Ms. B. and her husband were seen in our office for the first time in 1995. Her history revealed a pre-marital relationship where she accidentally got pregnant in 1984, and elected for induced abortion. During her marriage, she gave birth to one live male infant in 1991, which was conceived rather quickly but delivered at 38 weeks after a lengthy, premature labor, which began at the 25th week. Ms. B. was essentially on bed rest between the 30th and 36th weeks of her pregnancy. At 38 weeks, premature rupture of her membrane occurred and, after a lengthy waiting period, when labor did not commence, Pitocin was initiated and in a six-hour labor, she delivered vaginally a 5 pound, 7 ounce baby boy. The baby boy had a congenital defect, hypospadias, which was repaired during the first year of the

baby's life. At age 4, the time of Ms. B.'s office visit to us he was believed to be 40 percentile in expected body weight and 50 percentile in expected height. The child exhibited noticeable retardation in motor and speech development.

In May 1994, the couple was ready to try for a second pregnancy, which promptly occurred. At thirteen and a half weeks, the amniotic sac ruptured and the fetus was spontaneously miscarried. Due to a retained placenta, she underwent dilation and curettage. At that time, her Chlamydia trachomatis culture was reported as negative. Anatomical study of the aborted fetus was normal.

In September 1994, Ms. B. achieved her next pregnancy, again without difficulty. A miscarriage occurred after nine weeks. Chlamydia trachomatis and Gonorrhea tests were performed with negative results. The patient underwent a series of immunological evaluations, including tests for rheumatoid factor, Lupus anticoagulant, anti-phospholipase antibodies and anti-nuclear antibodies. All tests were returned with normal values. A semen analysis performed in November 1994 revealed Mycoplasma and both husband and wife were treated with two-weeks of Doxycycline.

In December 1994, Ms. B. conceived her fourth pregnancy, which was closely monitored and reported early as being a blighted ovum. She miscarried in the middle of January 1995.

Following the miscarriage, Ms. B.'s cervical culture was heavily positive for Group B Streptococcus and the submitted endometrial biopsy specimen was positive for Streptococcus constellatus. Similarly, the seminal fluid exhibited a heavy growth of Group B Streptococcus. The couple's treatment involved a three-week course of Vibramycin. In May 1995, the patient reported a pregnancy. Ms. B. was promptly placed on intravenous antibiotics, consisting of 6 gm of Ampicillin daily, delivered by an ambulatory pump system. On June 12th and later on June 28th, 1995, two vaginal sonograms were performed, showing a well-developing, intrauterine pregnancy with date and size compatibility.

The pregnancy went to term and Ms. B. delivered five days shy of the completed nine months, her second male child. The pregnancy had proceeded without event, labor occurred spontaneously and an easy vaginal delivery was accomplished.

A two-year follow-up, when the two boys were compared, revealed all measured parameters, including somatic, emotional development and cognitive performance by far superior in the second boy. Ever since Mrs. B.'s successful management, **it is the routine practice of this office to treat Group B Streptococcus-associated habitual aborters with both pre- and post-conceptual antibiotic therapy.** We prefer sensitivity tests prior to choosing antibiotics. If possible, we use intravenous Clindamycin prior to conception. Once pregnancy is established, an additional ten days of intravenous Ampicillin is given.

In habitual aborters, as of today, we have eleven successfully treated cases, where a normal pregnancy and normal delivery of a healthy infant occurred after this regimen.

Although this is a relatively small series and does not establish a cause and effect relationship between Group B Streptococcus and habitual abortions, the beneficial effects of antibiotic therapy is unquestionable.

We recommend seminal fluid and endometrial biopsy sampling for culture studies for this organism and an aggressive trial with antibiotics before a more expensive or extended fertility workup is undertaken.

References:

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